

Perspectives for Atmospheric Neutrino Studies with Hyper-Kamiokande

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Hyper-Kamiokande is a next-generation neutrino experiment that is under construction in Japan. Among its various physics goals, it will be used to make long-baseline neutrino oscillation measurements. This will combine neutrinos from the J-PARC accelerator (which is now serving the T2K experiment) as well as neutrinos created by interactions of primary cosmic rays from the atmosphere. The Hyper-Kamiokande far detector design has a fiducial volume 8 times the size of the currently-running Super-Kamiokande detector and will be instrumented with new photosensors that offer significant improvements in performance. In this talk, we will focus specifically on how Hyper-K will be capable of probing CP-violation and the neutrino mass hierarchy with atmospheric neutrinos alone. A general overview of atmospheric neutrinos will be tied to the reconstruction/classification capabilities of Hyper-K and finally to its sensitivity over time to these two physics questions.

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Classification de Session: Open questions in the study of Earth's mantle and core